

IN THE SPECIFICATION

Please enter the following amendments to the specification.

Amend the title as follows:

~~HYDRAULIC FLUID DEVICE TEST SYSTEM~~ FOR TEMPERATURE- CONTROLLED TESTING OF HYDRAULICALLY ACTUATED DEVICES

[0004] ~~Currently hydraulic component vendors, in order to test their hydraulic systems and components, by travel to an intended temperature operating environment or may, for example, It is also known to physically insert a the hydraulic systems or and components into a freezer for cold temperature testing thereof. These known techniques of for testing hydraulic systems and components is are time consuming and costly and in some instances, such as when a freezer is utilized, can receive require large testing equipment.~~

[0008] The embodiments of the present invention provide several advantages. One such advantage is the ability to test one or more hydraulic components in a ~~reliably~~ reliable temperature controlled environment. This ability is provided through the use of a simulated test environment and without the need of large test equipment.

[0022] The hydraulic cylinder 22 resides within a first temperature controlled housing 45. Any of the valves 30 may also reside within the first housing 45. In one example embodiment, the fill valve 34 and the output valve 40 reside within the first housing 45 to aid in the maintaining of the temperature of the controlled fluid 14. The

first housing 45 is constructed to provide a temperature controlled fluid bath 46 for the hydraulic cylinder 22 and any valves contained within the first housing 45. The ~~liquid~~ fluid bath 46 may be in an air or liquid state. The first housing 45 may be insulated and formed of various materials known in the art to aid in the maintaining of a constant internal temperature.

[0024] The temperature adjusting circuit 24 includes a circulation device 60, which circulates a temperature adjusting fluid 62 through the first housing 45 and cools or warms the hydraulic cylinder 22 and any valves contained within the first housing 45. The adjusting fluid 62 may form the fluid baths 46 and 49 within the housings 45 and 48. The circulation device 60 may include or be formed of one or more fluid cooling and/or warming devices, such as a heat exchanger, a chiller, a pump, a fan, a blower, an air conditioning unit, an oven, or various other fluid ~~temperate~~ temperature adjusting devices known in the art. The circulation device 60 may for example be in the form of a cool air-circulating device produced by Thermotron.RTM. Industries. When the second housing 48 is utilized the adjusting circuit 24 may also be coupled to and circulate a fluid therethrough. Although the circulation device 60, the first housing 45, and the second housing 48 are shown as being in one single continuous circuit having a single fluid circulating therein, the fluid circulating through the first housing 45 is not necessarily the same and may be different from the fluid flowing through the second housing 48. Multiple temperature adjusting circuits may be utilized to separately adjust the temperatures within the housings 45 and 48. A single continuous circuit aids in the

maintaining of the controlled fluid 14 and the device 16 at an approximately constant temperature.

[0026] The control circuit 12 may include multiple temperature sensors 74 and pressure sensors 76, which are coupled to the controller 72. In the embodiment shown, a first temperature sensor 78 resides within and detects the temperature within the first housing 45. A second temperature sensor 80 is coupled to and detects the temperature of the hydraulic cylinder 22. A third temperature sensor 82 is coupled to and detects the temperature of controlled fluid 14. A ~~forth~~ fourth temperature sensor 84 is coupled to and detects the temperature of the test device 16. A fifth temperature sensor 85 resides within and detects the temperatures within the second housing 48. The temperature sensors 74 may be in the form of thermocouples or in some other known form. A first pressure sensor 86 detects the pressure of the initial fluid 20 upon leaving the pump 44. A second pressure sensor 88 detects the pressure of the controlled fluid 14 upon leaving the output valve 40. A third pressure sensor 90 detects the pressure of the hydraulic fluid 92 exiting the test device 16. The pressure sensors 76 may be in the form of pressure transducers, pressure gauges, or in some other known form.

[0032] In step 106, temperature of the initial fluid 20 is adjusted to form the controlled fluid 14. The inlet valve 32, the return valve 38, and the fill valve 34 are closed. The circulation device 60 is actuated to circulate the adjusting fluid 62 through the first housing ~~18~~ 45. In step 108, the temperature of the test device 16 is adjusted to be approximately the same as the predetermined temperature. The circulation device 60 is

actuated to circulate the adjusting fluid through the second housing 48. Step 108 and 106 may be performed simultaneously.